

A.3 Central Yard

A.3.1 SWMU 11A

Description

SWMU 11 was identified based on the indicated presence of the burials on the Refinery Leaded Burial Map and divided into one northern TEL burial (SWMU 11A) and two southern (SWMU 11B) TEL burials. SWMU 11A consists of a suspected 20-foot by 20-foot TEL sludge burial located east of the NJCRR railroad tracks in the parking area west of State Street. SWMU 11 is now almost entirely covered by an asphalt parking lot with access from State Street.

As shown on Figure A.3.1 and summarized on Table A.3.1, 18 borings, ten soil samples and three groundwater samples have been used to characterize this SWMU. During the 1st-Phase RFI (1995), one sample (SB0056SB) was analyzed for Skinner's List VOCs and SVOCs, TPH, lead and TEL. Additional work was conducted in September 2002 to delineate the horizontal and vertical extent of this TEL site. Three additional borings were installed at the approximate locations shown on Figure A.3.1. Three soil samples were collected from each boring: a surficial sample from zero to two feet bgs or immediately below pavement; from the interval that exhibited the highest headspace response and/or the most signs of contamination, or just above the water table if no interval was relatively more impacted; and from clean native material one to two feet below the fill layer or from the interval one to two feet below the last evidence of contamination. These nine soil samples were analyzed for TCL VOCs and SVOCs, lead and TOL. In addition, one soil sample (S0744) was analyzed for physical characteristics¹, and one sample (S0744A4) was analyzed for SPLP lead.

Soils

The following table summarizes the number of samples where the delineation criteria were exceeded in soil samples:

Constituents of Concern	Surface Soils (0 to 2 ft)	Fill Material (>2 ft)	Native Soils	Total
Benzene	0/3	0/4	0/3	0/10
Other VOCs	0/3	0/4	0/3	0/10
Benzo(a)pyrene	1/3	0/4	0/3	1/10
Other SVOCs	1/3	0/4	0/3	1/10
Lead	0/3	1/4	0/3	1/10
TOL/TEL	0/3	1/4	0/3	1/10

¹Physical characteristics include saturated and unsaturated permeability tests, moisture content, relative permeability, bulk density, porosity, soil sorptive capacity, CEC, TOC, pH, Eh and grain size distribution.

Surface Soils (0 to 2 feet bgs)

There was no evidence of petroleum-related impacts in any of the three borings. The only constituents detected above the applicable soil delineation criteria in surface soil samples were benzo(a)pyrene (3.1J mg/kg) and several other PAHs, which were detected in surface soil sample S0745A4. It is likely that these PAHs are associated with the paved parking lot that now covers this SWMU.

Subsurface Fill Materials (>2 feet bgs)

There was no evidence of potential TEL sludges in the 18 borings installed at SWMU 11A, with the several exceptions. The soil sample from 8 to 9 feet bgs showed evidence of petroleum-impacts, and elevated PID readings (25 ppm and 2,958 ppm) were noted at SB0056 and U011013, respectively. The fill layer is generally between 4 to 10 feet thick at SWMU 11A. Lead (1,820 mg/kg) and TEL (3.45 mg/kg) were detected in only one subsurface fill sample (SB0056SB) at SWMU 11A.

Native Material

A clay/silt layer underlies the fill layer at depths ranging from approximately 4 feet to 10 feet bgs. No constituents were detected above the applicable soil delineation criteria in any of the three native soil samples. Therefore, the exceedances of the soil criteria are vertically delineated. As discussed further in Section 6 of the RFI Report, lateral delineation of selected COCs has been completed on a site-wide basis for each Yard. The delineation of these COCs is depicted graphically on the figures provided in Section 6.

Groundwater

Bis(2-ethylhexyl)phthalate and lead were detected above their respective delineation criteria in the initial groundwater sample from SWMU11A. However bis(2-ethylhexyl)phthalate was also identified in the associated blank sample. Neither bis(2-ethylhexyl)phthalate nor lead were detected above the delineation criteria in the second round of groundwater samples that were collected in close proximity to the original sample. Therefore, additional groundwater characterization is not warranted for SWMU 11A.

Summary

In summary, the only constituents that exceeded the soil delineation criteria were total lead, organic lead and PAHs. Lead and TEL were detected above the delineation criteria in only one soil sample (SB0056), at concentrations of 1,820 mg/kg and 3.45 mg/kg, respectively. Relatively low concentrations of PAHs (<5 mg/kg) were detected in the surficial sample from S0745. No other COCs were detected above the delineation criteria in any of the soil samples from this SWMU. Furthermore, there were no exceedances of any COCs in confirmatory groundwater samples collected in 1999. Nonetheless, impacted soils at SWMU 11A will be included for further evaluation in the CMS.